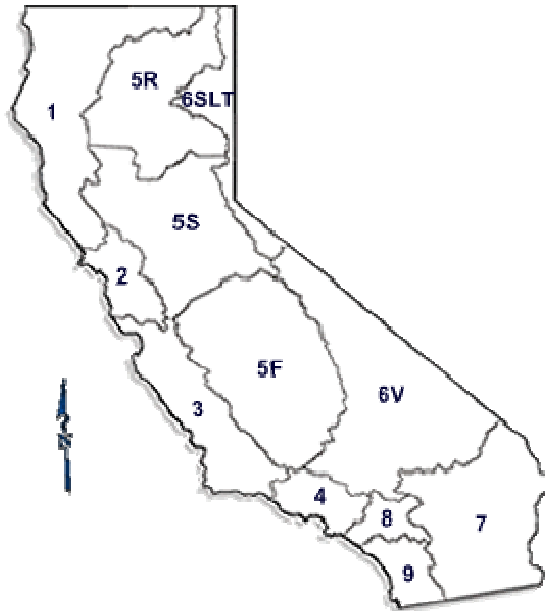




## ANNUAL PROGRESS REPORT FOR FEDERAL CLEAN WATER ACT SECTION 319 PROGRAM

July 2006 through June 2007



Prepared by:

State Water Resources Control Board

California Regional Water Quality Control Boards

California Coastal Commission

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# TABLE OF CONTENTS

INTRODUCTION .....	1
WORKING COLLABORATIVELY WITH OTHERS.....	1
The Inter-Agency Coordinating Committee .....	2
<i>Marinas and Recreational Boating Subcommittee</i> .....	2
<i>California Wetland and Hydromodification Subcommittee</i> .....	3
Critical Coastal Areas Program .....	3
The California Water and Land Use Partnership .....	4
Getting the Point about Nonpoint Source Pollution – Education and Outreach.....	5
Green Gardens Help Protect Endangered Fish in the San Geronimo Creek Watershed ...	6
Timely Action Leads to the Eradication of a Destructive, Invasive, Non-native Seaweed.	6
TRACKING THE IMPLEMENTATION OF MANAGEMENT MEASURES .....	7
Tracking Management Practice Implementation .....	8
<i>Pesticide Management</i> .....	9
<i>Irrigated Water Management</i> .....	10
<i>Erosion and Sediment Control Management</i> .....	11
<i>Nutrient management</i> .....	12
DEMONSTRATING WATER QUALITY IMPROVEMENTS .....	13
Most California Wadeable Perennial Streams and Rivers, Coastal Bays and Estuaries in	
“Fair” to “Good” Condition.....	13
<i>Wadeable Perennial Streams and Rivers</i> .....	14
<i>Coastal Bays and Estuaries</i> .....	14
Surface Water Ambient Monitoring Program.....	15
Tools to Assess Wetlands .....	16
IMPROVING WATER QUALITY ON A WATERSHED BASIS .....	17
Watershed Improvement Measure (WIM) .....	17
Grants Reporting and Tracking System (GRTS).....	18
THE NPS ENFORCEMENT AND IMPLEMENTATION POLICY AND ASSOCIATED	
REGULATORY MANAGEMENT OPTIONS.....	19
The NPS Policy – 3 years later – Why does California have a Policy and what difference	
has it made? .....	19
Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated	
Land.....	20
Waste Discharge Requirements for Dairies .....	22
Water Board Collaborates with Farm Bureau on TMDL Implementation .....	22
Cleaning up the Legacy of Mining in California.....	24
Trash TMDLs - Nonpoint Source Trash .....	25
Timber Waiver Policy.....	26
The NPS Policy and TMDL Implementation .....	26
TARGETING FUNDING TOWARDS IMPAIRED WATERBODIES .....	28
2006 CWA 319 Projects .....	28
Project Name .....	29
Project Description .....	29
NEXT STEPS – LOOKING FORWARD.....	31
California NPS Program – 2008-13 Five Year Implementation Plan .....	31
The California Monitoring Council .....	31
Tool Development.....	32
California Monitoring And Assessment Program (CMAP) .....	32





## INTRODUCTION

The State Water Resources Control Board (State Water Board) and the nine Regional Water Quality Control Boards (Regional Water Boards) (Water Boards) together with the California Coastal Commission (CCC) are the lead State agencies for implementing the Nonpoint Source (NPS) Program through the *Plan for California's Nonpoint Source Pollution Control Program* (NPS Program Plan). The purpose of the NPS Program is to improve the State's ability to effectively manage NPS pollution. The overall goal of California's NPS program is the prevention or control of NPS pollution such that none of the beneficial uses of water is impaired by that pollution. Our efforts are focused on promoting a watershed-based approach, implementing high-priority management measures (MMs), using tools outlined in the "*Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program*" (NPS Implementation and Enforcement Policy), and educating the public and providing technical assistance.

The NPS Program allocates a significant portion of its resources to work with watershed groups to: (1) encourage development and implementation of watershed management plans that address NPS pollution, (2) implement MMs, and (3) educate and provide technical assistance to the public, agencies, and private landowners about NPS pollution problems and solutions. Throughout the State, the NPS Program is spearheading efforts to track, monitor, and assess MM implementation. The Program is involved in collaborative efforts to streamline project implementation that achieve noticeable water quality improvements in a timely and cost-effective manner.

## WORKING COLLABORATIVELY WITH OTHERS

The NPS Program works with approximately 20 other State agencies that have authorities, programs, or responsibilities relating to the control of NPS pollution. The success of a sustainable effort to protect and restore the quality and environment of the State's waters relies on staff's ability to build cooperative partnerships with these agencies as well as stakeholders. Coordinating and focusing such a large number of entities to produce an effective NPS program in a state as large and geomorphologically diverse as California poses unique and difficult challenges. The challenge is to effectively target our NPS efforts from both a water resources (e.g., water quality, geographic, or watershed area) and economic resources perspective while at the same time increasing stakeholder support. While increased use of regulatory authorities can help to address these challenges (such as

the authorities described in the NPS Implementation and Enforcement Policy), a wide range of tools, activities, and authorities are drawn upon to address NPS pollution statewide.

### ***The Inter-Agency Coordinating Committee***

The Water Boards and CCC have established an Inter-agency Coordinating Committee (IACC) to provide a regular forum to collaborate NPS implementation and problem solving. The NPS Program works with IACC agencies to find opportunities for improved coordination, identify instances where impediments to effective management occur, and to devise responses to move toward enhanced performance and management. The NPS Program can then tackle the challenge of collecting assessment and tracking information, coordinate activities to reduce duplication, and work collectively to make sure that one agency's activities do not cause issues with other agency's jurisdictional responsibility. Two subcommittees of the IACC are currently active:

#### **Marinas and Recreational Boating Subcommittee**

The primary focus of the Marina Subcommittee has been to prioritize and address the following seven marina-related priority issues/contaminants and related MMs over the next five years with respect to assessment, implementation and education: (1) bacterial issues/pathogens including sewage, vessel waste, and pumpout stations; (2) copper boat paints; (3) invasive species; (4) gas, oil and grease; (5) stormwater runoff; (6) graywater; and (7) abandoned vessels.

Over the past year, the Copper Anti-Fouling Paint Workgroup, a successful outgrowth of the Marina Subcommittee, has worked to assess the degree and geographical distribution of copper pollution caused by copper anti-fouling paint pesticides in California's aquatic (freshwater to marine) environments. In particular, California Department of Pesticide Regulation staff conducted a marina copper monitoring study in 23 marinas/harbors statewide that will provide quantitative baseline data on the extent of copper at marinas in the state when it is completed in late 2007.

Additionally, the Marina Subcommittee formed a workgroup in December 2006 to review the industry-led Clean Marinas California Program (CMP) Guidebook and Program. The CMP has certified 60 marinas through June 2007. This workgroup provided review, analysis and recommendations to help make the CMP more effective in reducing NPS pollution associated with marinas. The workgroup determined that the CMP's primary focus is on implementing operation and maintenance MMs and management practices (MPs) at marinas, with less focus on assessment, siting or design MMs. In summary, the workgroup made recommendations pertaining to: the focus of the guidebook, marina certification process and scoring, boater education, education for the general public, invasive species, no discharge zones, gray water, best management practices, and the CMP's incentive program.



### California Wetland and Hydromodification Subcommittee

The NPS Wetland-Hydromodification Subcommittee has helped define numerous tasks necessary to complete the draft report on wetland restoration projects, including reducing duplicate records within the combined data inventory and defining additional indicators to include in the tracking of future projects. Future indicators of program success that will be



tracked include increases in wetlands acreage over time, regional habitat goal attainment, and project habitat goals attainment (using standard definitions).

As a result of the wetland tracking exercise, the Subcommittee helped identify several problems with current tracking procedures, which limit the state's ability to track success. The NPS Wetland-Hydromodification Subcommittee worked with other state and regional partners to develop consistent reporting/data system parameters regarding project objectives, restoration techniques, habitat acreage, and wetland conditions. These key data fields were finalized and presented to the State Water Board and the State Resources Agency for integration with concurrent efforts.

### Critical Coastal Areas Program

California's Critical Coastal Areas (CCA) Program fosters collaboration among local stakeholders and government agencies, to better coordinate resources and focus efforts on coastal watersheds in critical need of protection from polluted runoff. The objective of the CCA Program is to ensure that effective long-term NPS MMs are implemented to protect or restore water quality in these coastal watersheds. To achieve this objective, collaborative efforts are underway to develop and implement a *NPS Watershed Assessment and Action Plan (WAAP)* for reducing polluted runoff that threatens coastal resources in each of five Pilot CCAs, one in each region of the coast (North Coast, San Francisco Bay, Bay Area Coast, Central Coast, and South Coast).

For each of the five Pilot CCAs, a Pilot Steering Committee of local stakeholders (watershed groups, special interest organizations, and community members) and government agencies (local, state, and federal) was formed and are guiding the development of the community-based WAAP. The *NPS Watershed Assessment* identifies and evaluates existing and potential NPS pollution impacts to coastal and marine resources, and the *Action Plan* then identifies the steps required to address NPS impacts and improve water quality conditions in the CCA's watersheds, including evaluation and application of appropriate NPS MMs.



Coastal Commission staff wrote preliminary *NPS Watershed Assessment* reports for the Trinidad, Fitzgerald, and Watsonville Pilot CCAs. Each of the five Pilot CCAs began



expanding upon these preliminary reports as a basis for development of their full *NPS Watershed Assessment*. Watsonville Pilot CCA has completed their draft *NPS Watershed Assessment*.

Coastal Commission staff devised a draft framework for evaluating existing MM implementation and identifying potential additional MMs needed, and conducted preliminary MM evaluations for three of the Pilot CCA watersheds. With funding provided through the Clean Water Act (CWA) section 319(h) Program, the San Francisco Estuary Institute (SFEI) conducted preliminary MM evaluations for two of the Pilot CCAs and worked on several key technical elements required by US EPA in watershed-based plans, including: 1) identification of land-use types and sources of pollutants impacting each of the three Pilot CCAs and adjacent coastal waters; 2) estimation of expected pollutant load reductions resulting from implementation of existing and planned NPS MMs and MPs; 3) description of NPS MMs/MPs needed to achieve estimated load reductions, and identification of areas where these measures are needed; 4) development of a method to identify all appropriate NPS MMs from California's NPS Plan for any California watershed, and application of this method to the three CCA Pilots; and 5) selection of an accepted method to evaluate impervious surface coverage in CCAs, and estimation of current and build-out areas of impervious surface in each of the three Pilot CCAs.



A series of public workshops was held in each Pilot CCA to inform the public about the project, and invite stakeholder participation in the development of the Pilot CCA's *NPS WAAP*. Four well-attended public workshops were held for the Trinidad Head Pilot CCA. Information about the Fitzgerald Marine Reserve CCA, Sonoma Creek CCA (San Francisco Bay Area), and Watsonville Slough CCA projects can be found at (<http://www.abag.ca.gov/cca.html>).

Two of the Pilot CCAs were awarded California Proposition 50 Integrated Coastal Watershed Management Planning (ICWMP) grants in 2006: the Trinidad Head CCA (North Coast), and the Orange County CCA Project (South Coast; including Newport Beach Marine Life Refuge, Irvine Coast Marine Life Refuge, Heisler Park Ecological Reserve, and Upper Newport Bay CCAs). SFEI was also contracted with in 2006 to assist with technical aspects of the *NPS Watershed Assessment* for three Pilot CCAs: James Fitzgerald Marine Reserve CCA and Sonoma Creek CCA (San Francisco Bay Area), and Watsonville Slough CCA (Central Coast).

### ***The California Water and Land Use Partnership***

The California Water and Land Use Partnership (CA WALUP), a member of the National Nonpoint Education for Municipal Officials (NEMO) Network, is an informal partnership among state and federal agencies, non-governmental organizations, and universities that have goals related to improving water quality in the state of California. The mission of CA



WALUP is to protect natural resources by providing technical information and practical tools for informed land use decision-making at the local level.

To further support CA WALUPs efforts, the Center for Water and Land Use ([Center](#)) was created at the University of California Davis Extension. Supported in part by CWA 319(h) grant funds, the Center serves as the repository for technical and educational resources that address natural resource-based planning. It is particularly focused on examples of resource-based planning and low impact development (LID) that are applicable to the geography and hydrology of California. In addition, the Center will lead an effort to implement these tools and resources in at least six communities throughout the state. The initial projects for the center include developing a set of profiles for development projects that use LID techniques or similar MPs to protect natural resources and water quality and development of a website.



### ***Getting the Point about Nonpoint Source Pollution – Education and Outreach***

The Clean Water Team (CWT) continued getting the word out about NPS pollution and what role individuals could play to make a difference. The CWT participated in World Water Monitoring Day activities at three events - Poway, Huntington Beach Pier, and Cabrillo Marine Aquarium in San Pedro, as well as participating in Coastal Monitoring Day at the Bolsa Chica Wetlands – by speaking about NPS issues, hosting educational booths and supplying monitoring equipment and supplies throughout the state. The CWT provided interested Citizen Monitors with meters and test kits; reagents for indicator bacteria testing; instruments for measuring flow; and bioassessment equipment. The demand for Citizen Monitoring Workshops continued and several were held throughout the state; between 50 and 100 Citizen Monitors were trained. Six trainings were conducted with the primary focus on bioassessment and several general water quality monitoring workshops were held as well.

The CWT also conducted monitoring site visits to assist with monitoring plan development, conducted field crew audits, and reviewed and commented on many Quality Assessment Program Plans and monitoring plans. Efforts continued to acquire and loan both equipment and supplies for citizen monitors. The CWT continued the *Currents* newsletter and other communications and represented Citizen Monitoring at numerous meetings, workshops, and conferences.



### ***Green Gardens Help Protect Endangered Fish in the San Geronimo Creek Watershed***

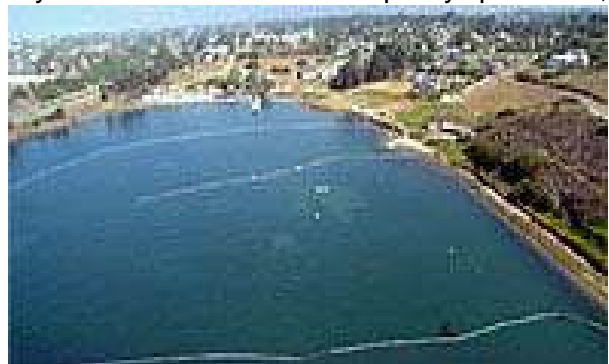


With a lot of hard work, local support, and creative thinking, a small grassroots community group in Marin County, California, leveraged CWA 319(h) grant funds with a significant local match to complete a model stormwater capture project that protects Coho salmon streams, reduces bank erosion, saves water, and educates local school children about how to protect the earth we all share. The model project, a rainwater-harvesting system, captures rainfall from the roof of a playground lunch-shelter at the local Lagunitas Elementary School in the San Geronimo Valley, collecting rainwater during the stormy winter months and diverting it into a cistern that will be used to irrigate the School's Organic Garden Project during the dry, summer period. The slanted roof leads to a rain gutter

where two downspouts collect water into one pipe that flows to a new 30,000-gallon cistern near the school garden. Left un-captured, the runoff would have drained onto a concrete pad and into a 10-inch storm-drain that empties out onto an already eroded bank on Larsen Creek, a salmon-bearing creek that flows into San Geronimo Creek, one of the major tributaries to Lagunitas Creek. Excess water captured (approx. 5,000 gallons in an average rainfall year) will be diverted into a vegetated swale where it will be allowed to percolate into the groundwater table. In an average year, the project will capture 35,000 gallons of water from the lunch-shelter roof. That water can be stored in the cistern and used during dry months to water the school's garden, where kale, snow peas, cabbage, broccoli, chard, sweet peas and other vegetables are grown for educational and school cooking projects. Excess water can be used to water a school field. Over the next 10 years, it is estimated that 350,000 thousand gallons of stormwater runoff will be retained on site and diverted from the Larsen Creek storm drain.

### ***Timely Action Leads to the Eradication of a Destructive, Invasive, Non-native Seaweed***

Although infestations of water environments (including wetlands and riparian areas) by invasive non-native organisms have not typically been viewed as “water quality” problems, the infestations of *Caulerpa taxifolia* launched an unusual partnership that resulted in the eradication of the two known southern California infestations. Both *Caulerpa* infestations found in southern California were in coastal embayments. The first infestation was found in Agua Hedionda Lagoon, in San Diego County, about 30 miles north-northwest of downtown San Diego. The second infestation was found in Huntington Harbor, in Orange County, about



60 miles northwest of Agua Hedionda Lagoon and about 25 miles south-southeast of downtown Los Angeles. These were the first infestations of *Caulerpa taxifolia* found in North America.

The Southern California *Caulerpa* Action Team (SCCAT) was convened shortly after the first infestation was discovered. SCCAT recognized that the infestations of *Caulerpa* in southern California resulted from discharges of wastes and that damage caused by *Caulerpa* could be as severe and long-lasting as damage that might be caused by “traditional pollutants.” Efforts to protect coastal waters from damage caused by “traditional pollutants” would be for naught if *Caulerpa* were to spread. *Caulerpa* is a “living pollutant” capable of growing, spreading, and causing damage to coastal waters.

SCCAT recognized that new treatment methods would need to be used. In southern California, eradication work involved intensive surveys of the infested waters using teams of scuba divers to search for *Caulerpa*. Where *Caulerpa* was found, plastic tarps were placed over it, chlorine was put under the tarps, and sandbags were placed on top of the tarps to keep them in place. SCCAT concluded that short-term losses of native marine life associated with the treatment of *Caulerpa* would be considerably less than long-term losses



that would occur if *Caulerpa* were to spread in and/or beyond the infested waters. The work undertaken by SCCAT, including but not limited to the eradication effort, has been characterized by collaboration and cooperation between SCCAT participants. Communication and coordination with stakeholders (lagoon users and others) and their cooperation were important components of the eradication effort. Eradication of the *Caulerpa* infestations in both Agua Hedionda Lagoon and Huntington Harbor was announced on July 12, 2006.

Governmental agencies and community-based environmental organizations came together to celebrate the successful eradication of the invasive seaweed, *Caulerpa taxifolia*, from the two locations where it was detected nearly six years ago. The \$7 million battle against the *Caulerpa taxifolia* algae included chlorine treatments and years of scuba-diver surveys. Biologists will continue to monitor conditions in the years to come to make certain *Caulerpa* doesn't come back.

## TRACKING THE IMPLEMENTATION OF MANAGEMENT MEASURES

Management measure tracking in the California NPS Program is used as a means to show the effectiveness of the NPS Program implementation through use of the NPS regulatory management options specified in the NPS Implementation and Enforcement Policy (e.g.; waste discharge requirements [WDRs], waivers of WDRs, basin plan prohibitions] and education and outreach activities. In the short term, MM implementation can be used as a surrogate to determine program effectiveness in terms of the increase in MM/MP implementation. In the long term, the location and extent of MM implementation can be related to water quality improvements to determine the NPS Program success. Several tools or indicators, such as policies and existing programs, surveys, and field data have been



identified to track implementation of MMs. Another effective indicator of MM implementation is the tracking of MP implementation.

### ***Tracking Management Practice Implementation***

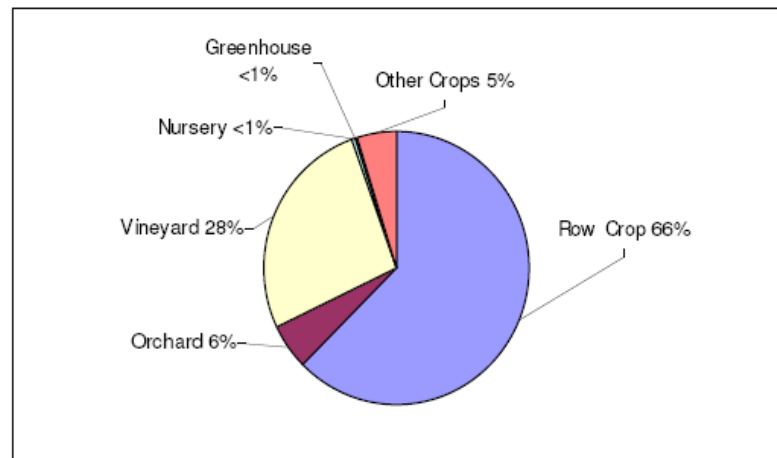
As part of the Conditional Waiver for Irrigated Agriculture, the *Central Coast Regional Water Quality Control Board (CC Water Board)* summarized water quality MP implementation reported by irrigated commercial farming operations (growers) in the Central Coast Region.



The [2006 Management Practice Checklist Update Report](#) is a summary of water quality MPs reported by irrigated farming operations enrolled in the Central Coast Water Board's Conditional Waiver for Irrigated Lands. A requirement of the conditional waiver is that all growers submit a checklist of implemented and planned practices when they enroll and submit an updated checklist at least once during the five years of the conditional waiver. The checklist is a short questionnaire that allows growers to identify planned or implemented farm water quality management practices. All 1,775 enrolled growers representing approximately 400,000 acres were mailed checklists for updates on December 5, 2006.

Responses were due by January 1, 2007; 1,040 growers representing 287,533 acres responded by this date and were included in the summary. Growers reported on four MMs or categories of MPs: pesticide management, irrigation water management, erosion and sediment control management, and nutrient management. The report describes the number and percentage of represented growers and acres by crop type (row crops, vineyards, orchards, nurseries, and greenhouses) farmed in the Central Coast Region.

One of the initial steps in the planning process for the checklist was to establish its goals (Table 1). Some goals were outlined in the conditional waiver while others were outlined by Regional Water Board staff. Additional goals were submitted by interested parties such as education and outreach coordinators and growers.



**Figure 1: Percentage of represented crop acreage in the entire Central Coast Region.**

**Table 1. Checklist Goals**

<b>Checklist Goals for the Conditional Waiver</b>
<ul style="list-style-type: none"> <li>• Establish the MP checklist as a short questionnaire that allows the grower to identify MPs that are being planned and/or implemented for water quality protection.</li> <li>• Allow growers to add practices that are known to or are likely to have a water quality benefit.</li> <li>• Use the checklist to assess whether practices need to be adjusted or increased based on where water quality problems have been identified.</li> </ul>
<b>Checklist Goals from Water Board Staff</b>
<ul style="list-style-type: none"> <li>• Document MPs at the site level (e.g., ranches and farms) so that relationships between MPs and water quality can be examined.</li> <li>• Make the checklist form easy to use and submit.</li> <li>• Track MPs that benefit water quality and are applicable to irrigated agriculture in the Central Coast Region.</li> <li>• Identify where to focus future outreach.</li> <li>• Document progress towards achieving a Regional Water Board long-term goal that, by 2025, 80% of the land within any watershed is properly managed to support a healthy functioning watershed, with the remaining 20% achieving positive trends.</li> </ul>
<b>Checklist Goals from Interested Parties</b>
<ul style="list-style-type: none"> <li>• Determine the amount of MP implementation throughout the region and in the various counties and major watersheds.</li> <li>• Make the checklist available to non-English speakers.</li> </ul>

The practice reporting form was designed to determine the level of implementation for four types of farm water quality MMs or MP categories: pesticide management, irrigation water management, erosion and sediment management, and nutrient management. Checklist questions were directed at the grower/operation level so that growers could submit only one checklist for their entire operation and not for each ranch site.

The checklist also provided crop acreage information for the entire region. The largest percentage of represented crop acreage was row crop at 66% followed by vineyard at 28% (Figure 1). The results of the survey are organized by the four MMs or MP categories.

### **Pesticide Management**

Questions listed below are followed by a graph illustrating the level of MP implementation indicated by grower's responses to each question.

- P\_1) Is an integrated Pest Management program established?
- P\_2) Are pest populations assessed and pesticides applied based on scouting data, thresholds, and/or risk assessment models?
- P\_3) Are introduced or managed biological control agents utilized?
- P\_4) Does pesticide selection consider runoff or leaching potential?
- P\_5) Does pesticide selection consider toxicity to non-target organisms?
- P\_6) Is pesticide application equipment regularly inspected, maintained, and calibrated to ensure appropriate application rates and distributions?
- P\_7) Is yearly pesticide training provided for all pesticide handlers who apply, load, mix, transport, clean, and repair pesticide application equipment?
- P\_8) Do pesticide storage facilities have concrete pads and curbs for containment of spills?
- P\_9) Are pesticide mixing and loading areas located in such a manner to reduce the likelihood of a spill or overflow contaminating a water source?
- P\_10) Are production wells on elevated concrete bases upslope of pesticide storage and handling facilities?

P\_11) Does wellhead protection consist of an elevated concrete seal, sump, or buffer area of 100' around the wellhead and a backflow prevention device?

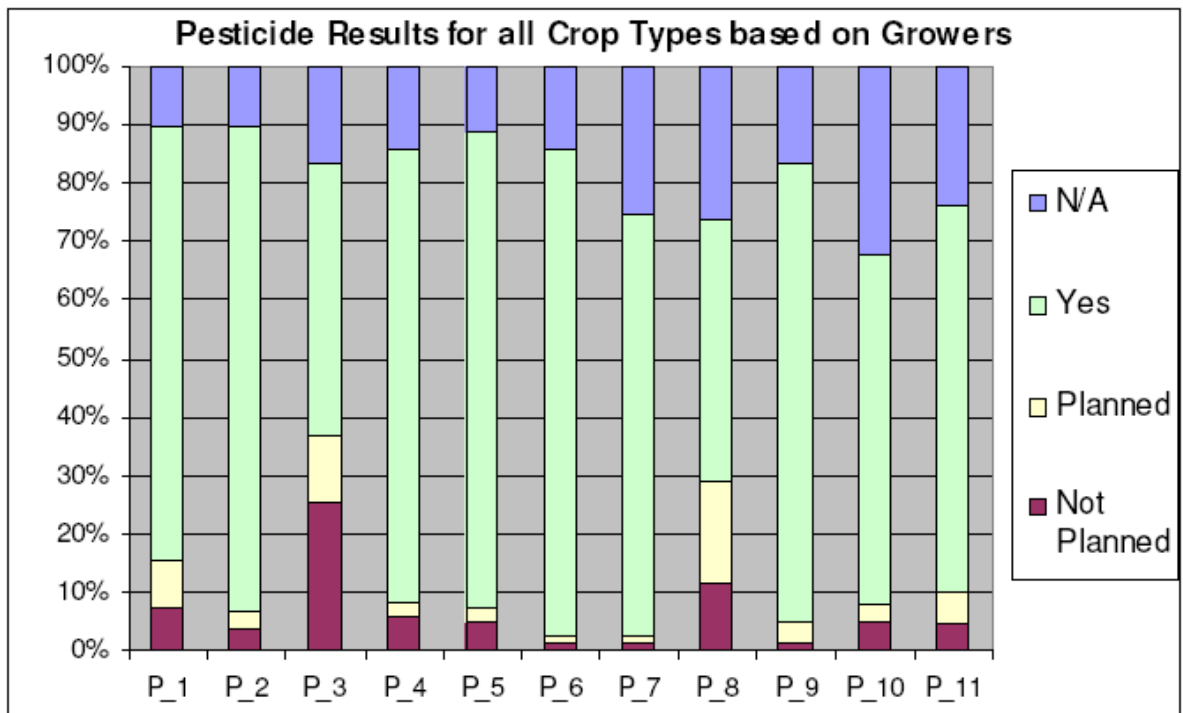


Figure 2: Level of implementation of pesticide MPs for all represented growers.

### Irrigated Water Management

Questions listed below are followed by a graph illustrating the level of MP implementation indicated by grower's responses to each question.

- I\_1) Is drip irrigation distribution uniformity maximized and maintained through regular system equipment and system pressure maintenance?
- I\_2) Is sprinkler and micro-sprinkler irrigation distribution uniformity maximized and maintained through regular system pressure maintenance and water application during low wind conditions?
- I\_3) Is furrow and flood irrigation distribution uniformity maximized and maintained by either managing furrow lengths, installing surge irrigation valves, installing irrigation field ditches, or using alternate row irrigation?
- I\_4) Is your irrigation system design optimized by matching sprinkler nozzle/drip applicator flow rates to the infiltration rate of the soil?
- I\_5) Are measured or published evapo-transpiration data (CIMIS) used to determine crop water use?
- I\_6) Is the soil water-holding capacity known?
- I\_7) Are records kept for each crop irrigated? (Records include the date, amount of each irrigation water applied, and the source of water used.)
- I\_8) Have all irrigators who apply irrigation water and maintain irrigation systems received training?
- I\_9) Has an irrigation mobile lab system evaluation been completed and the system been adjusted accordingly?



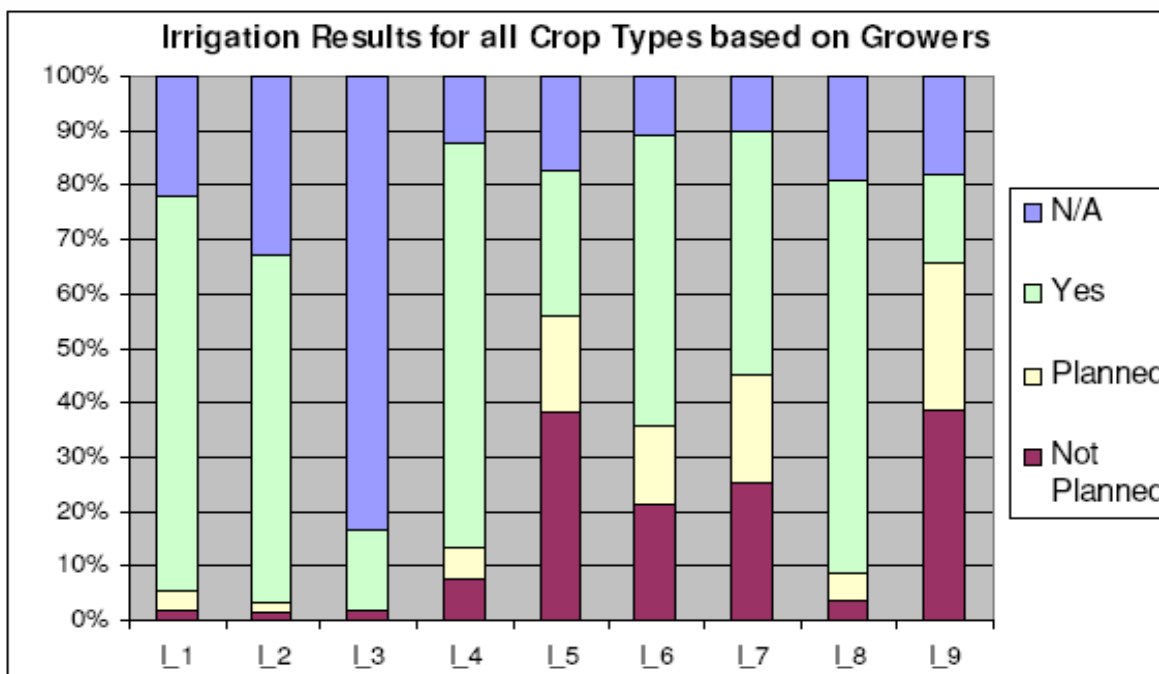
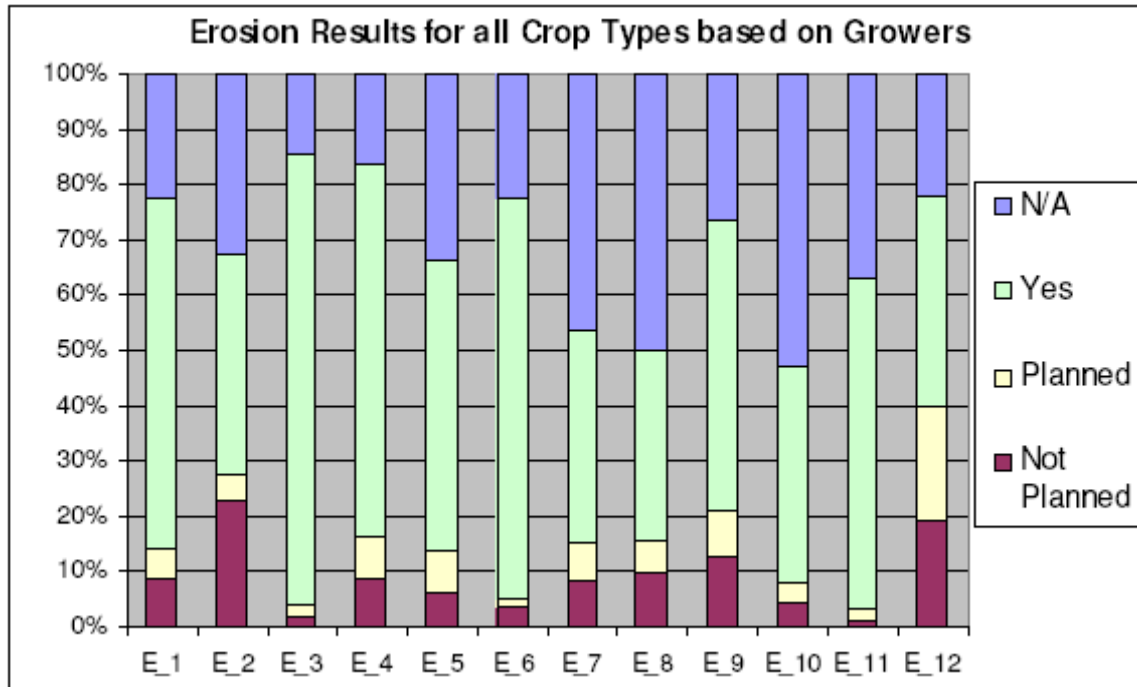


Figure 3: Level of implementation of irrigation water MPs for all represented growers.

### Erosion and Sediment Control Management

Questions listed below are followed by a graph illustrating the level of MP implementation indicated by grower's responses to each question.

- E\_1) Are cover crops used to protect bare soil from erosion during fallow cycles and to build up solid organic matter as a crop rotation?
- E\_2) Are hedgerows, trees, and shrubs established along field margins or between field blocks to reduce wind effects, and protect slopes from erosion?
- E\_3) Are farm access roads located and graded to minimize erosion potential?
- E\_4) Are farm access roads protected from concentrated runoff through the use of vegetative material, gravel, and/or mulch?
- E\_5) Are ditches and channel banks protected from concentrated flow through the use of grassed waterway, lined channels, and/or diversions?
- E\_6) Are field layout and row length designed to minimize erosion potential?
- E\_7) Are sediment basins constructed to intercept sediment-laden runoff in locations where erosion is expected and sediment is known to leave the farm?
- E\_8) Are water and sediment control basins used in locations where sediment and excess runoff may cause gullies or flooding problems downstream?
- E\_9) Are vegetative buffers implemented between cropped areas, along the lower edge of the farm, and along roadways? *(This practice is also effective in removing nutrients and pesticides from runoff.)*
- E\_10) Where streams cross or property, are riparian buffers established and maintained?
- E\_11) Are culverts properly sized and maintained?
- E\_12) Are implemented management practices evaluated for effectiveness (i.e. photopoint monitoring, water quality testing)?



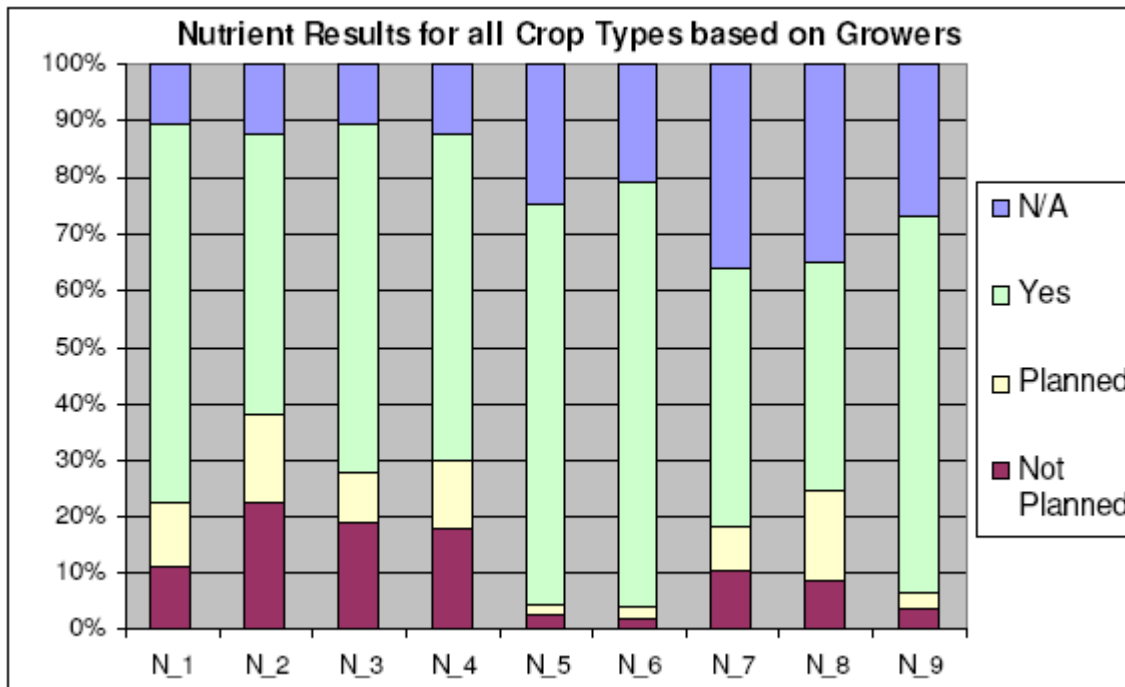
**Figure 4: Level of implementation of erosion and sediment MPs for all represented growers.**

### Nutrient management

Questions listed below are followed by a graph illustrating the level of MP implementation indicated by grower's responses to each question.

- N\_1) Are the crop's nutrient requirements known and are nutrient budgets established and recorded?
- N\_2) Do you test irrigation water for nitrogen content and incorporate that information into your fertilization program?
- N\_3) Is plant tissue analysis used to aid in fertilizer decisions?
- N\_4) Do you test your soil for residual nitrogen and incorporate that information into your fertilization program?
- N\_5) If fertigation is used, are measures in place to ensure that there is no backflow into wells or other water sources?
- N\_6) Do you regularly maintain and calibrate your fertilizer equipment?
- N\_7) Do field personnel receive nutrient management training?
- N\_8) Do fertilizer storage facilities include concrete pads and curbs for containment of spills and are they protected from weather?
- N\_9) Is mixing and loading performed on sites with low runoff hazard, over 100' down slope of wells?





**Figure 5: Level of implementation of nutrient MP for all represented growers.**

Inspections are an integral part of all Regional Water Board regulatory programs. In the coming year, the CC Water Board will conduct on-farm inspections throughout the region, both on a random basis to verify submitted information and better understand what farmers are implementing, and in response to complaints or identified problems. Water Board staff made many preliminary visits with growers to get their assistance in developing the inspection program. The primary goal of inspections is to see what practices farmers are implementing, work with them to solve problems, and make referrals to technical assistance providers when appropriate.

## DEMONSTRATING WATER QUALITY IMPROVEMENTS

### *Most California Wadeable Perennial Streams and Rivers, Coastal Bays and Estuaries in “Fair” to “Good” Condition*

One of the first steps in managing our environmental resources is to determine their current condition by answering the key question, “What is the overall condition of California’s surface waters?” Often-raised questions relating to the condition of our waters include, “Is the water safe to drink?” “Are the waters safe to swim?” “Are the fish safe to eat?” and “Is aquatic life healthy?” As part of the Environmental Monitoring and Assessment Program (EMAP), sites were chosen through a statistical sampling technique in which every stream segment and estuarine water has a known probability of being selected. Standardized field methods and laboratory protocols were used to ensure comparability. The assessments focus on one beneficial use—aquatic life use—and are based only on aquatic invertebrate data collected in California as part of EMAP. The survey design generates statistically defensible, unbiased condition assessments. The statewide assessments based on biotic indices statistically established threshold values. The

findings<sup>1</sup> represent the state's initial attempt to make broad statistical estimates of the biological condition of wadeable perennial streams and estuarine waters statewide. It establishes a baseline that can be used to compare against future assessments.

### **Wadeable Perennial Streams and Rivers**

From 1999 through 2003, more than 190 randomly selected sites across the state and in three study areas in the northern, central and southern coastal watersheds were sampled. Field crews sampled each site during the summer. Two benthic macroinvertebrate indices were used – the California observed/expected index (O/E index) and the Western-EMAP



index of biotic integrity (IBI). The O/E index compares the number of organism types expected to exist at a site (E) to the number that are actually observed (O). The expected types of organisms are based on models developed from data collected at reference sites. The IBI is the sum of a number of individual measures of biological condition, such as richness of species and pollution tolerance. In both cases, the ability to recognize

ecological degradation relied on understanding conditions expected in the absence of human disturbance.

Results from the sampling determined that 67 to 78 percent of wadeable perennial streams are in “good” condition when compared to the best available reference, or least disturbed sites in California<sup>2</sup>. Periodic statewide assessments of wadeable streams will continue through the California Monitoring and Assessment Program (CMAP). Collaboration with US EPA, the Water Board's NPS Program and the Surface Water Ambient Monitoring Program (SWAMP), the CCC and the CA Department of Fish and Game, CMAP builds on the EMAP-Inland Surface Waters program and follows a similar sampling design except that it is stratified by land cover classes such as agriculture, urban and forest. Approximately 50 sites are sampled per year statewide. CMAP also includes modified channels. The program will allow for biennial statewide condition assessments and will enable researchers to begin evaluating associations between observed biotic effects and NPS land use categories.

### **Coastal Bays and Estuaries**

From 1999 through 2000, field crews sampled more than 130 California sites, including small California estuaries, river-dominated estuaries in northern California and San Francisco Bay, as part of EMAP. The water quality indicators that were assessed included dissolved oxygen, nutrients (nitrogen and phosphorus), chlorophyll a and water clarity. The sediment quality indicators included total organic carbon, sediment chemical contamination, toxicity and richness of bottom-dwelling species.

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<sup>1</sup> Water Quality Assessment of the Condition of California Coastal Waters and Wadeable Streams. State Water Resources Control Board. 2006.

<sup>2</sup> 1. Probabilistic Assessment of the Biotic Condition of Perennial Streams and Rivers in California. Final report, 2005. Posted at [www.waterboards.ca.gov/swamp/reports.html].

Most of the state's coastal waters appear to be in "fair" to "good" condition based on the water and sediment quality indicators used. The few high nitrogen levels were observed at Alviso Slough (South San Francisco Bay), Pajaro River (Central California) and Santa Ynez River (Central California). The higher phosphorus values were observed in much of San Francisco Bay and in a few coastal estuaries: Santa Ynez River, Los Angeles Harbor, Santa Margarita River and San Diego Bay. Although no sediments from San Francisco Bay were found to be toxic to the test organism *Ampelisca*, sediment toxicity tests using other test organisms indicated that some sediment from San Francisco Bay were toxic, suggesting that other test organisms, such as *Eohaustorius estaurius*, may be a more representative test species for California. Less than 10 percent of the state's coastal waters are in "poor" quality condition based on sediment contaminant concentration; those areas tend to be in Southern California ports.



The Water Board has joined with US EPA, the Southern California Coastal Waters Research Program and Moss Landing Marine Laboratories in the EMAP-Coastal Waters Program to continue monitoring bays and estuaries, intertidal wetlands and offshore coastal waters. National Coastal Assessments will occur at five-year intervals and will be integrated with large-scale regional monitoring programs such as the San Francisco Estuary Regional Monitoring Program and the Southern California Bight Project. Statewide assessments that include data from these and other programs will be done every two years. Future assessments will include evaluations of other beneficial uses including the safety of swimming in coastal waters and of eating fish caught in these waterbodies.

### **Surface Water Ambient Monitoring Program**

SWAMP has begun sample collection to establish a foundation for a new statewide bioaccumulation monitoring program. A recent review of bioaccumulation studies performed over the last 30 years revealed a serious lack of tissue data for most lakes and reservoirs. In response to this need, SWAMP is initiating a state screening survey of bioaccumulation in lakes and reservoirs. This effort categorizes lakes into high, medium, and low fishing uses. A sampling design has been developed to address beneficial uses associated with aquatic life and human health. The study focuses on bioaccumulation in sport fish, and included a randomized sampling of 50 lakes from across the state as well as a targeted effort to sample the 200 most popular fishing lakes.



In response to growing concern about reported increases of sediment toxicity linked to pyrethroid pesticides, SWAMP initiated a statewide study to investigate the role of pyrethroid



pesticides in sediment toxicity in California urban waterways. Ninety sediment sampling sites were selected from 30 stations located within 50 meters of residential stormwater outfalls in eight regions and assessed for toxicity. Criteria for site selection included land use, pyrethroid pesticide use, past evidence of sediment toxicity and/or evidence of organophosphate pesticide contamination and isolation from agriculture inputs. Chemical analysis and/or enzyme immunoassays (ELISAs) were conducted on the samples and toxicity identification evaluation (TIE) were completed on samples exhibiting substantial toxicity. The US EPA 10-day sediment toxicity tests were performed with a resident amphipod at two temperatures (15°C and 23°C). Although preliminary, the results found: 1) sediment toxicity in all Water Board regions assessed; 2) more toxic sediment samples observed at 15°C than 23°C testing; and 3) occurrence of high magnitude (0% Survival) sediment toxicity samples highest in the Los Angeles and Central Valley Regions.

### ***Tools to Assess Wetlands***

NPS staff has been working with state and federal partners (California Resources Agency, State Water Board, and USEPA) to improve state wetland assessment procedures through creation and calibration of a [California Rapid Assessment Method for Wetlands](#) (CRAM). A standardized, cost-effective tool for assessing the health of wetlands and riparian habitats, CRAM software guides users through assessments that take less than one-half field day to complete. CRAM is applicable to all wetland types. It is designed for assessing ambient conditions within watersheds, regions, and throughout the State. It can also be used to



assess the performance of compensatory mitigation projects and restoration projects. CRAM is designed to cost-effectively assess the performance of wetland and riparian restoration projects, mitigation projects, and the status and trends of ambient conditions within watersheds, regions of the State, and for the State as a whole. The use of CRAM for ambient

monitoring will, over time, help wetland managers and scientists quantify the relative influence of anthropogenic stress, management actions, and natural disturbance on the spatial and temporal variability in reference conditions. This information can then be used in the design, management, and assessment of projects.

Specific applications of CRAM could include:

1. Assessments of impacted wetlands to help determine appropriate mitigation measures;
2. Preliminary assessments of wetland conditions and stressors to determine the need for intensive monitoring;
3. Evaluation of wetland project performance under the Coastal Zone Management Act, Section 1600 of the California State Fish and Game Code, Sections 401 and 404 of the Clean Water Act (CWA), and local government wetland regulations; and
4. Assessment of restoration or mitigation progress relative to ambient conditions, reference conditions, and expected ecological trajectories.



NPS staff helped to calibrate the method for coastal wetlands and worked to integrate the procedure into NPS program tracking and monitoring efforts. CRAM is currently being used to compare a selection of estuarine wetlands in the state and will be used in a stream monitoring program next year.

## IMPROVING WATER QUALITY ON A WATERSHED BASIS

### *Watershed Improvement Measure (WIM)*

In 2006, US EPA and the Water Boards worked together to establish California state commitments for the US EPA Strategic Watershed Improvement Measure (WIM) to document successful water quality restoration by 2012. Of these 16 watershed segments, the Water Boards agreed to work towards achieving success by 2012 in 6 of them. Table 2 lists the pollutant and status of those watersheds that are primarily NPS-impaired, are likely to be partially or fully restored and will provide a measure of progress in reducing loadings of key pollutants (nitrogen, phosphorous, sediment). Much of the year was spent understanding the requirements of the new measure, and working to determine how and where to direct resources towards the final goal of the measure.

**Table 2. California Watershed for tracking environmental improvements under Measure “W”**

RB	Watershed Name/ Pollutant Listing consideration for “W”	Status
1	French Creek (Tributary to lower mainstem Klamath River) <ul style="list-style-type: none"> <li>Sediment</li> </ul>	<ul style="list-style-type: none"> <li>TMDL adopted; Regional Water Board starting implementation</li> <li>Active CRMP/watershed council effort</li> <li>BMPs for roads implemented in 90’s</li> <li>Monitoring efforts show results</li> </ul>
	Terwer Creek (Tributary to lower mainstem Klamath) <ul style="list-style-type: none"> <li>Sediment</li> </ul>	<ul style="list-style-type: none"> <li>Yurok tribe recipient of Targeted Watershed Grant</li> <li>Roads will be decommissioned over next 3 years</li> <li>Tracking partnership with Yurok tribe</li> <li>Klamath and tributaries are proposed for listing in 2006</li> </ul>
	Garcia River <ul style="list-style-type: none"> <li>Sediment</li> </ul>	<ul style="list-style-type: none"> <li>TMDL adopted in late 90’s</li> </ul>
	Shasta River <ul style="list-style-type: none"> <li>Sediment</li> </ul>	<ul style="list-style-type: none"> <li>TMDL to be adopted in 2006</li> <li>319 grant EPA – ability to coordinate current monitoring efforts by a number of watershed groups including the RCDs.</li> </ul>
4	Calleguas Creek Reach 7 <ul style="list-style-type: none"> <li>Ammonia</li> </ul> Reach 11 <ul style="list-style-type: none"> <li>Ammonia</li> </ul>	<ul style="list-style-type: none"> <li>TMDL Completed</li> <li>NPDES permit limits revised</li> </ul>
	Santa Clara River Reach 3 <ul style="list-style-type: none"> <li>Ammonia</li> </ul>	<ul style="list-style-type: none"> <li>TMDLs complete and being implemented</li> </ul>
	LA River Reach 3 Ammonia	<ul style="list-style-type: none"> <li></li> </ul>

RB	Watershed Name/ Pollutant Listing consideration for "W"	Status
5	Feather River <ul style="list-style-type: none"> <li>Diazinon</li> </ul>	<ul style="list-style-type: none"> <li>TMDL completed 2003</li> <li>Less use of diazinon</li> <li>Measure improvement already documented</li> </ul>
	Sacramento River, (Shasta Dam to I St bridge) <ul style="list-style-type: none"> <li>Diazinon</li> </ul>	<ul style="list-style-type: none"> <li>TMDL completed in 2003</li> <li>Less use of diazinon</li> <li>Measured improvement already documented</li> </ul>
	Sacramento Area Urban Creeks <ul style="list-style-type: none"> <li>Diazinon</li> <li>Chlorpyrifos</li> </ul>	<ul style="list-style-type: none"> <li>TMDLs complete</li> <li>Being implemented though 2004 stormwater permit</li> <li>Proposed for delisting</li> </ul>
	Grasslands and Salt Slough Tributary to San Joaquin River) <ul style="list-style-type: none"> <li>Selenium</li> </ul>	<ul style="list-style-type: none"> <li>TMDL completed some time ago</li> <li>Implementation program underway</li> <li>Monitoring data available</li> </ul>
8	San Diego Creek <ul style="list-style-type: none"> <li>Diazinon</li> <li>Chlorpyrifos</li> </ul>	<ul style="list-style-type: none"> <li>TMDLs completed</li> <li>Implementation start in 2003</li> <li>Implementation tasks include: 1) the US EPA re-registration agreement that would phase out the use of these pesticides by 2006; 2) the revision of certain waste discharge requirements to include the TMDL targets and monitoring and compliance by 2007; and 3) development of a pesticide run-off management plan which has been funded and is in progress</li> </ul>
	Upper Newport Bay <ul style="list-style-type: none"> <li>Chlorpyrifos</li> </ul>	
7	New River <ul style="list-style-type: none"> <li>Bacteria</li> </ul>	<ul style="list-style-type: none"> <li>Treatment plant on line in June 2006</li> <li>RB commitment to monitor</li> <li>Trash/solid water program in place</li> <li>Farm Bureau TMDL completed on CA side – being implemented with bond funds</li> </ul>
9	Chollas Creek <ul style="list-style-type: none"> <li>Diazinon</li> <li>Metals</li> <li>Trash</li> </ul>	
	San Diego Beaches <ul style="list-style-type: none"> <li>Pathogens</li> </ul>	<ul style="list-style-type: none"> <li>BMPs being implemented</li> <li>Proposed delisting</li> </ul>

### ***Grants Reporting and Tracking System (GRTS)***

The State Water Board requires that all grant recipients of the CWA 319(h) NPS pollution funds report annually on the "load reductions" achieved through the implementation of the grant project, specifically for suspended solids, nitrogen and phosphorous. This data is entered by State Water Board staff into a national database, the Grants Reporting and Tracking System (GRTS). US EPA collects this information in GRTS across the country for CWA 319(h)-funded on-the-ground implementation projects where one or more of these three pollutants are addressed by the project. Load reduction data entered into GRTS in a particular year usually reflect the results of a project that was implemented during a previous grant year. The following phosphorous and suspended solids load reductions in California were reported in FY06 phosphorous and suspended solids loadings in California:

- 467 lbs/year of phosphorous;

- 646 tons and 101,944 cubic yards of suspended solids.



## THE NPS ENFORCEMENT AND IMPLEMENTATION POLICY AND ASSOCIATED REGULATORY MANAGEMENT OPTIONS

### *The NPS Policy – 3 years later – Why does California have a Policy and what difference has it made?*

The Water Boards [Policy for the Implementation and Enforcement of the Nonpoint Source Pollution Control Program](#) (NPS Implementation and Enforcement Policy) provides guidance for developing an integrated program for implementing and enforcing the NPS Program Plan and, in so doing, fulfills the requirements of the California Water Code (CWC). The NPS Implementation and Enforcement Policy explains how the mandates and authorities, delegated to the State and Regional Water Boards by the California Legislature, will be used to implement and enforce the NPS Program Plan. The policy also provides a bridge between the NPS Program Plan and the *State Water Boards Water Quality Enforcement Policy* (Enforcement Policy<sup>3</sup>). The information provided in this Policy is designed to assist all responsible and/or interested parties in understanding how the State's NPS water quality control requirements will be implemented and enforced. The parties involved include the State and Regional Water Boards, federal, state and local agencies, individual dischargers, designated third-party representatives and any other interested public and private parties. The goal is to provide an integrated statewide approach to controlling nonpoint sources of pollution.

Given the extent and diversity of NPS pollution discharges, the Policy provides the Regional Water Boards the ability to be as creative and efficient as possible in devising approaches to prevent or control NPS pollution. The Policy provides guidelines for development of third-party NPS control programs and a number of the Regional Water Boards have adopted this approach. A primary advantage of the development of third-party programs is their ability to reach multiple numbers of dischargers who individually may be unknown to the Regional Water Board.

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<sup>3</sup> SWRCB, 2002. Water Quality Enforcement Policy. Office of Statewide Initiatives, Sacramento, CA. February 2002.

Successful implementation of the NPS Program largely depends on two factors: the ability of the Regional Water Boards to use their administrative authorities and limited resources in creative and efficient ways, and the willingness of dischargers to implement MPs and other strategies that effectively prevent or control NPS discharges. The Policy provides the Regional Water Boards the opportunity for periodic evaluation of all aspects of the program and an adaptive management approach that facilitates the road to success. Statewide implementation of the NPS program is predicated not only on individual NPS discharger actions to adopt and adapt alternative MPs, but upon the development and adaptation of self-determined management structures that encourage and support these changes. In addition, the Policy provides the Regional Water Boards with the needed flexibility to experiment, evaluate, and adapt management approaches that will support and bring us closer to our ultimate goal -- controlling NPS pollution to protect the quality of waters of the State in accordance with the mandates of the CWC.



During the last three years, the NPS Implementation and Enforcement Policy served to confirm the Water Boards authority to regulate NPS pollution and provided the genesis for many NPS control implementation programs throughout the various regions. Some of these efforts are taking hold; some are just beginning. For some of the Regional Water Boards, efforts have ushered in a new era of collaboration and cooperation; for others their efforts have been met with controversy and conflict. Nonetheless, the NPS Implementation and Enforcement Policy provides a template for NPS pollution control in California and the nation.

### ***Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Land***

*The Los Angeles Regional Water Quality Control Board (LA Regional Water Board)* has just concluded the first year of its Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (Conditional Waiver). In order to comply with the conditions of the waiver, Dischargers (either individually or as part of a group) are required to submit a Notice of Intent (NOI), Monitoring and Reporting Program (MRP) Plan and a Quality Assurance Project Plan. These documents are necessary for enrollment in the program and are the instructional documents under which water quality monitoring will be conducted.



Effective grower outreach was considered essential for successful implementation of the Conditional Waiver program. LA Regional Water Board staff actively outreached to both growers in Los Angeles and Ventura Counties. Staff completed direct mailings to the agriculture community informing them of the Conditional Waiver for Irrigated Lands. Approximately, 1,800 letters and flyers were mailed to growers located in both Los Angeles



and Ventura Counties alerting them to the adoption of the program, enrollment options, the conditions of the program, and the availability of additional information. In addition, staff organized and participated in several grower workshops and meetings with the agriculture community.

In order to facilitate the enrollment process Conditional Waiver staff created an on-line enrollment system for the Notice of Intent (NOI). The on-line enrollment system is available through a link on the LA Regional Water Board's website. This system not only provides individual enrollees with the convenience of completing and submitting the NOI electronically, but provides an efficient record keeping method for staff. The database provides staff with the tools to quickly analyze grower information such as, crops grown, typical irrigation practices and common pesticides used throughout the area.



There are currently two established Discharger Groups participating in the Conditional Waiver for Irrigated Lands. In addition, there are a handful of growers who have chosen to participate in the program as an Individual Discharger; these growers also submitted enrollment documents. The Ventura County Agriculture Irrigated Lands Group (VCAILG) represents 1,080 landowner members with 73,697 enrolled acres across Ventura County. This acreage breaks down across the watersheds to represent approximately 42,000 acres in Calleguas Creek, 27,000 acres in Santa Clara River, 3,500 acres in Ventura River, and 1,500 acres in miscellaneous Ventura Coastal. This enrolled acreage represents 60% of the total irrigated acreage in Ventura County. The VCAILGs MRP identifies 24 monitoring locations throughout Ventura County; 12 sites are located in the Calleguas Creek Watershed, 7 in Santa Clara River Watershed, 3 in Oxnard Coastal Watershed, and 2 in Ventura River Watershed. In the Calleguas Creek Watershed monitoring conducted under the Conditional Waiver will be coordinated with the Calleguas Creek Total Maximum Daily Load (TMDL) monitoring program. Sample locations were selected primarily based on the fact that they are influenced by irrigated agriculture and unlikely to receive inputs from other land uses.

Similarly the Nursery Growers Association (NGA)-Los Angeles County Irrigated Land Group was formed to represent Los Angeles County growers. This group currently has 196 members with 1,550 acres enrolled throughout Los Angeles County; it is estimated that this represents about 15% of the total irrigated acreage in Los Angeles County. The NGA-LA County Irrigated Lands Groups MRP identifies 16 sampling sites throughout the Los Angeles Basin. Sites were selected to be representative of the group as a whole based on various crop types, water practices, fertilizer and pesticide use, management practices and site locations. Data collected at these sites and the Ventura County sites will be used to determine if water quality benchmarks are being attained.



In addition, a small community of Spanish speaking growers in Los Angeles County has begun to form a Discharger Group. At this time they have identified 7 members and are working to develop their Notice of Intent, Monitoring and Reporting Project Plan, and Quality

Assurance Project Plan. Staff is currently working to have the Conditional Waiver documents translated into Spanish to assist this group.



When the *Central Valley Regional Water Quality Control Board (CV Regional Water Board)* renewed the Irrigated Lands Conditional Waiver in June 2006, it added a requirement that coalition groups in the program must submit electronic updated participant lists. The CV Regional Water Board achieved full compliance from the seven agricultural coalitions and obtained the names of participating growers. Data in the lists shows that there are more than 28,000 growers and 70,000 parcels totaling more than 5 million acres enrolled in coalition groups.

This represents more than a 30 percent increase in participation from September 2005.

### ***Waste Discharge Requirements for Dairies***

The confined animal facility program regulates approximately 2,000 confined animal facilities in the Central Valley Region. The majority (approximately 1,600) of these facilities are dairies. Of the remaining 400, approximately 200 are poultry facilities and the rest are feedlots and horse, goat, sheep, swine, and llama facilities.



Dairy wastes are typically applied to on-site cropland or transported elsewhere for cropland fertilization. The *CV Regional Water Board* recently adopted a waste discharge requirements general order (Order) that requires dairies to develop a nutrient management plan for their cropland by July 1, 2009 to ensure wastes are applied to cropland at agronomic rates. The Order requires facilities to implement the nutrient

management plan by July 1, 2012 and to monitor to ensure compliance with surface water and groundwater water quality objectives. Regional Board staff plans to develop regulatory programs for the other types of confined animal facilities as time permits.

### ***Water Board Collaborates with Farm Bureau on TMDL Implementation***

Irrigation surface runoff (a.k.a. “tailwater”) from agriculture in the Imperial Valley, located in Southeast California, has contributed high levels of sediments and other pollutants to the New River, Alamo River, and Imperial Valley Drains. Most pollutants associated with these water bodies scheduled for TMDL development and implementation are NPS pollutants from Imperial Valley irrigated agriculture. The *Colorado River Regional Water Quality Control Board (CR Regional Water Board)* is using a watershed management approach with “geographically nested” TMDLs to address the impairments in these waters. Stakeholder participation is key in this approach, particularly the involvement of the Imperial County Farm Bureau (ICFB).



When developing an Implementation Tracking Plan (ITP) for the TMDLs, the CR Regional Water Board formed a unique partnership with ICFB. The ICFB's Voluntary Compliance Program has been a key factor in the success of TMDL development and implementation for the Imperial Valley. The objective of the Program is to assist the farming community in undertaking self-determined MPs to deal with farm-related water quality impairments and comply with the Regional Water Board TMDL requirements. The premise of the Program is strikingly simple – the trade industry knows its constituency and the issues they are facing better than the regulators (i.e., ICFB is more likely to succeed in persuading farmers to go along with a regulatory program than the regulators), and farmers are better at managing the land than the regulators (self-determined MPs and self-policing are far more effective than the typical regulatory approach). A farmer/grower enrolls (i.e., signs up for the ICFB's Program) and completes a series of ICFB Program forms that identify, among other characteristics, the landowner, grower/operator, the farm location, its main water quality problems, the proposed MPs to address problems, and how MP implementation is to be documented. CR Regional Water Board staff has strongly recommended that individuals work with ICFB to submit a Group Plan through the Farm Bureau's Watershed Program. ICFB estimates approximately 97% of the farmers within the Alamo and New River watersheds have filed sediment control plans through their Watershed Program. One farmer/grower has exercised the option to file a sediment control plan directly with the Regional Water Board.



ICFB has developed a website whereby farmers can log on and read more about the TMDL program, learn about up-coming meetings, and most importantly, enter in their On-Farm Water Quality Improvement Plans (Farm Plans) complete with types of crops grown and MPs implemented. Those farmers not familiar with the internet or that do not have access to a computer may submit their Farm Plans in person or by mail. The ICFB, in turn, is responsible for forwarding such information to the Regional Water Board.

The three silt TMDLs have essentially similar implementation schedules in order to ease implementation efforts by both farmers and CR Regional Water Board staff. The silt TMDLs cover approximately 500,000 acres of agricultural land in the Imperial Valley and is irrigated with nearly 3.0 million-acre feet/year (MAF) of Colorado River water. On any given year, there are over 5,500 different farming operations in the Imperial Valley. For the purpose of compliance with the Silt TMDLs, farmers/growers in the Imperial Valley and the Imperial Irrigation District (IID) are the main responsible parties.

The ICFB has received multiple federal CWA 319(h) grants to complete implementation tasks. Implementation tasks include outreach and education of the farming community, formation of drainshed groups, and collection, submittal of drainshed sediment control plans. According to the terms



of their CWA 319(h) grant, ICFB is required to submit on an annual basis, a list of program participants organized by drainshed, and a Watershed Program Plan. The Watershed Program Plan identifies measurable environmental and programmatic goals; describes aggressive, reasonable milestones and timelines for development and implementation of TMDL outreach plans and sub-watershed plans; and describes a commitment to develop and implement a tracking and reporting program. The ICFB is also required to submit semi-monthly reports describing the progress of each sub-watershed groups, any technical assistance workshops planned or conducted, and any other pertinent information.

The silt TMDL numeric targets are measured using total suspended solids (TSS) as an indicator of silt. The final numeric target, defined in the Basin Plan, is 200 mg/l TSS. The TMDLs are currently in Phase 2 of implementation. Phase 2 has interim targets of 240 mg/l TSS for the Alamo River, 213 mg/l TSS for the New River, and 282 mg/l TSS for the Imperial Valley Drains. Phase 2 requires reductions totaling 40%, 12%, and 35% respectively. Overall, most sampling locations on the New River, Alamo River, and major drains are already in compliance with the Phase 2 numeric targets and are on schedule for attaining the final TMDL numeric target (Figure 6). CR Regional Board staff is pleased with the overall success of the ICFB's TMDL Program at reducing sediment in the Alamo River, New River, and Imperial Valley Drains. Cumulative percent load reductions show progress towards TMDL targets.

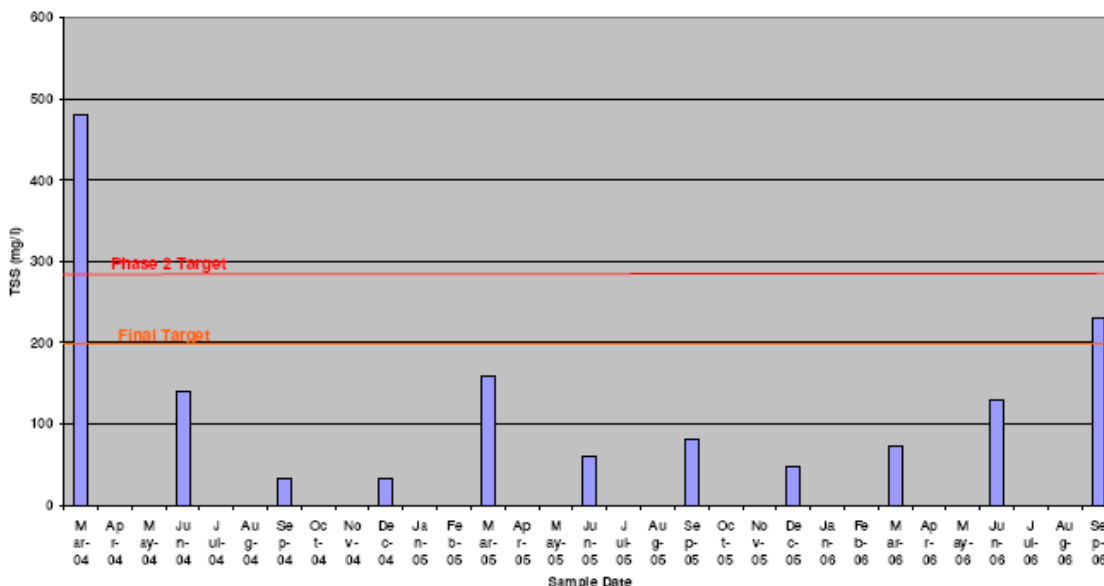


Figure 6: P Drain Silt TMDL Targets vs. TSS concentrations over time

### *Cleaning up the Legacy of Mining in California*

The CV Regional Water Board is working to address environmental issues from the historic, but polluted gold mine at the Empire Mine State Park in Grass Valley California under the agencies' first-ever multi-agency enforcement order. Working with the Department of Toxic Substances Control (DTSC), California Department of Parks and Recreation and Newmont USA Limited (Newmont), a Cleanup and Abatement and Partial Consent Order was signed. The unique agreement combines the regulatory authority of the CV Regional Water Board and DTSC into a single order to simplify compliance. It also provides for the Regional Water Board and DTSC to receive cost reimbursement for project oversight.

The Empire Mine State Park's environmental issues stem and literally flow from the historic mining wastes and operations that contain arsenic, lead, and other metals. Identified areas of initial concern include a remnant mine waste stockpile, a large tailings impoundment, and a drain tunnel discharge known as the Magenta Drain. Controlling dust exposure for trail users and storm water pollution from the tailings are major goals of the current effort. California State Parks and Newmont are also investigating the drain tunnel and possible remedies for the discharge into Wolf Creek.

The agreement covers agency-approved, time-critical actions that have begun and will continue for the next several months. California State Parks and Newmont will cap the remnant stockpile that has been a source of storm water pollutants. They are also collecting water and sediment samples in the creek below the Magenta Drain and in nearby Memorial Park and are assessing possible treatment and cleanup actions. The state has sampled hiking trails throughout the park and taken initial response actions in several areas as necessary, to isolate toxics and eliminate the potential for human exposure. Finally, they will identify areas at the park (including several residences) where exposure to mining and mill wastes may present an elevated health risk. Where appropriate, they will address problems and create exclusion zones until a permanent remedy is determined.



The agreement recognizes that additional environmental work beyond 2006 is necessary at the park, and requires the preparation of a Public Participation Plan to identify the level of public interest and appropriate way(s) to include the public in additional environmental activities and decision-making. Later, the agencies and Newmont may also amend the order to cover additional phases of work.

### **Trash TMDLs - Nonpoint Source Trash**



The LA Regional Water Board adopted trash TMDLs for Machado Lake in the Dominguez Channel Watershed, Revolon Slough and Beardsley Wash in the Calleguas Creek Watershed, Ventura River Estuary in the Ventura River Watershed, Lake Elizabeth, Munz Lake and Lake Hughes in the Santa Clara River Watershed, and Legg Lake in the San Gabriel River/Los Angeles River Watersheds. Based on the source assessment analysis, NPS accounts for a considerable amount of the trash accumulated in the waterbodies. To control NPS trash inputs, Load Allocations (LAs) will be assigned to land owners and agencies in the vicinity of waterbodies. To implement Trash TMDLs for NPS dischargers, the LA Regional Water Board adopted a conditional waiver of WDRs, along with the TMDLs, for those dischargers who implement a Minimum Frequency of Assessment and Collection (MFAC) and Best Management Practices

Program (BMP). The final LA of zero must be reached five years after the effective date of the Trash TMDLs.

The MFAC/BMP Program includes an assessment of trash on the surface and shoreline of waterbodies, collection of all trash that accumulates on the water and shoreline, and implementation of BMPs to attain a progressive reduction of the amount of trash collected at each collection event. Responsible jurisdictions are required to implement an initial suite of BMPs based on current trash MPs in areas that are found to be sources of trash. The conditional waiver requires identification of areas where BMPs need to be upgraded in order to attain the water quality objective in receiving waters.

### ***Timber Waiver Policy***

*The Lahontan Regional Water Quality Control Board (LH Regional Water Board)* adopted a timber waiver policy, in February 2007, which included a monitoring reporting plan. All timber harvest and vegetation management activities conducted within the Lahontan Region that could affect the quality of the waters of the State must comply with this new policy. Land owners and federal or state land managers must apply for and receive either a "waiver" or "WDRs" (i.e., a permit) from the LH Regional Water Board before conducting timber harvest or vegetation management activities as defined in the policy.

All timber harvest activities conducted under a California Department of Forestry (CDF)-accepted Notice of Exemption or Notice of Emergency, or a CDF-approved Timber Harvesting Plan (THP), Nonindustrial Timber Management Plan (NTMP), Program Timber Harvesting Plan (PTHP), etc., must also apply for a waiver or individual permit from the Water Board. The policy also applies to other timber management activities, such as non-commercial fuel reduction or the application of silvicultural herbicides.



### ***The NPS Policy and TMDL Implementation***

*The North Coast Regional Water Quality Control Board (NC Regional Water Board)* has recently adopted TMDLs for the Scott River and Shasta River on September 8, 2006 and January 26, 2007, respectively. NC Regional Water Board staff developed the TMDLs in coordination with stakeholders and other agencies. The TMDLs contain Action Plans that require landowners to take specific actions to reduce pollutant loads and ultimately achieve water quality standards.

The Scott River is listed on the CWA 303(d) list as impaired due to excessive amounts of sediment and elevated stream temperatures. The *TMDL Action Plan* requires landowners to implement measures that will reduce erosion and sediment discharges into streams and protect streams and enhance riparian vegetation to reduce stream temperatures. The TMDL also requires Siskiyou County to develop and implement a ground water study plan with the goal of increasing cold water inputs into streams from ground water sources.





The Shasta River is listed as impaired due to elevated stream temperatures and reduced dissolved oxygen levels. The *Shasta TMDL Action Plan* requires landowners to implement measures that will protect streams and enhance riparian vegetation to reduce stream temperatures, and to reduce discharges of sediment, nutrients and other oxygen consuming materials in order to increase dissolved oxygen levels. The Shasta TMDL also

encourages landowners to work together to improve water conservation efforts that will increase dedicated cold water in the Shasta River.

In order to attain the sediment and temperature TMDLs, achieve the sediment and temperature related water quality standards, and protect the beneficial uses of water in the Scott River and Shasta River watersheds, specific implementation actions need to be taken. The implementation actions are designed to encourage and build upon on-going, proactive restoration and enhancement efforts, and to comply with the state's NPS Implementation and Enforcement Policy. Adhering to the key elements of the NPS Policy, both TMDLs include conditional waivers for land owners as a means to develop implementation actions to achieve compliance with the TMDL. Parties complying with TMDL Action Plans qualify for coverage under the waiver. The conditional waivers provide permit coverage for those discharges not already covered by another program and are conditioned on participation in an ongoing collaborative process. Should any of the implementation actions fail to be implemented by the responsible party or should the implementation actions prove to be inadequate, the NC Regional Water Board will take appropriate permitting and/or enforcement actions.

The implementation actions address:

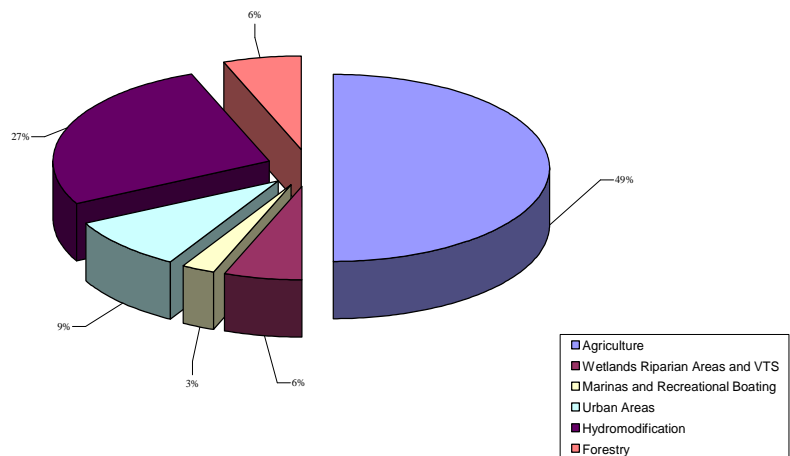
- sediment waste discharges;
- roads at the private, county, and state levels;
- ground-disturbing activities;
- dredge mining;
- water temperature and vegetation;
- water use;
- flood control and bank stabilization;
- timber harvest;
- activities on U.S. Forest Service land;
- activities on U.S. Bureau of Land Management land;
- grazing; and
- cooperation with the Siskiyou Resource Conservation District, Scott River Watershed Council, Natural Resources Conservation District, University of California Cooperative Extension and California Department of Fish and Game.



## TARGETING FUNDING TOWARDS IMPAIRED WATERBODIES

### 2006 CWA 319 Projects

The CWA 319 Grants Program is an annual federally funded NPS pollution control program that is focused on controlling activities that impair beneficial uses and on limiting pollutant effects caused by those activities. The NPS Program establishes priorities and recommends that funds be allocated across the various land use categories. Because pollution from agricultural lands are recognized as the largest source of NPS pollution within the state, agriculture accounted for 49% of 319h funds (Figure 7). Hydromodification projects received 27%; urban areas accounted for 9%; both Forestry and Wetlands, Riparian Areas and Vegetated Treatments Systems received 6%; and Marinas and Recreational Boating received 3% of allocated funds. The projects listed in Table 3 were selected by the Water Board because they met the established priority for waters on lists of impaired waters and had developed action plans, known as TMDLs, to improve water quality. Project proposals that address TMDL implementation and those that address problems in impaired waters are favored in the selection process. There is also a focus on implementing management activities that lead to reduction and/or prevention of pollutants that threaten or impair surface and ground waters.



**Figure 7: 319h Projects by NPS Categories (2000-2006).**



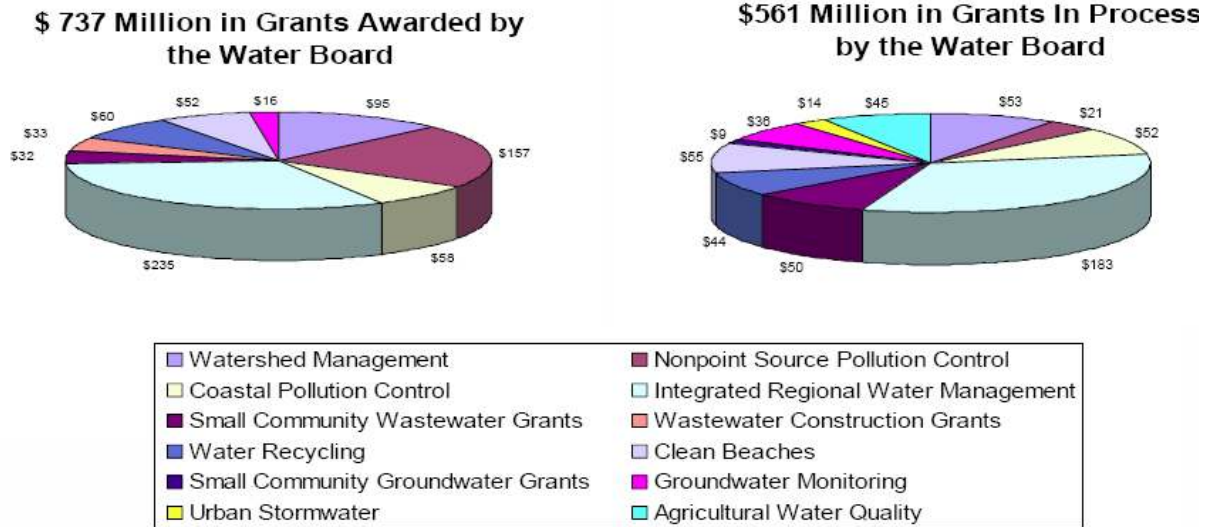
**Table 3. 2006 319(h) “Matching” Grants**

Project Name	Project Description	Watershed Code	Grant Amount
Napa River Sediment Reduction & Habitat Enhancement Plan	The project plan is to restore the geomorphic balance to the Napa River segment to address the TMDL issue of channel incision. This will make it possible to restore aquatic habitat along the river.	Napa River Watershed	\$500,000
Los Penasquitos Sediment Basin	Construction of a sediment interception basin will reduce sedimentation that is impairing water quality and destroying the salt marsh. Revegetation and monitoring will be conducted. A TMDL is under development.	Los Penasquitos/ Mission Bay WMA San Diego Watershed	\$1,107,000
Mattole River Watershed Management Initiative	The MRWMI will (1) develop a watershed-based timber permitting framework for non-industrial forestlands, (2) further TMDL sediment and water temperature reduction objectives across 27,000 acres through sediment treatments, riparian restoration, and TMDL Implementation Plans, (3) undertake estuary and coastal zone restoration for salmon recovery and open space protection, (4) demonstrate groundwater recharge and evaluate the effectiveness of the IRWMP integrated water supply approach, and (5) monitor basin-wide water quality and effectiveness of forest practices and watershed restoration	Mattole River Watershed	\$620,000 of Total: \$3,280,200
Perazzo Meadows Acquisition and Restoration	Acquire 982 acres of severely degraded yet highly valued ecosystem land inside the Tahoe Nat'l Forest. Assess and address the sources of degradation.	Little Truckee River Watershed	\$2,000,000
Reforestation of the upper Bull Creek Watershed	The lower Bull Creek watershed in Humboldt Redwoods State Park. The upper watershed was heavily logged before Park acquisition and has been identified as a treatment priority in DFGs Coho recovery plan. We will expand our project for selective thinning, planting appropriate species along high water temperature and likely debris flow reaches, to plant areas that may be infected with SOD, to utilize surplus stems from the thinning and a nearby road removal project for in stream uses, to plant pioneering species on landslides with high surface erosion, and to monitor the results.	Bull Creek Watershed	\$525,000
Trinity Drinking Water Source Sediment Reduction Project	This project will treat sources of erosion on county roads that have the potential to yield ~74,490 yd <sup>3</sup> of sediment to anadromous streams in the Trinity River watershed. Erosion sources were targeted and prioritized based on their likelihood to deliver sediment, total potential delivery volume, and cost effectiveness of treatments. This project will help to achieve sediment TMDL targets and objectives of the Trinity River Restoration Program, improve drinking water quality, and enhance anadromous fish habitat quality.	Upper Middle Trinity River Watershed	\$505,384
Reducing NPS Sediment and Pesticide Pollution in County Road Maintenance Operations	This project will reduce sediment, nutrient and pesticide NPS pollution to impaired waters in Santa Cruz County, through projects implementing an Integrated Vegetation Management planning Process in County roadside operations. The County manages over 600 miles of roads through the watersheds of 25 waterbodies listed on the 303(d) list as impaired by these pollutants. Fisheries issues and management of roadsides adjacent to waterways will be emphasized. At least three priority projects to manage vegetation will be implemented following the planning process (Stormwater Grant)	Big Basin & Pajaro Watersheds	\$629,756

Project Name	Project Description	Watershed Code	Grant Amount
Selby Creek Stream Habitat Restoration and Riparian Revegetation Project	Project will restore, stabilize and revegetate 224 sites on the entire length of Selby Creek (watershed of 600 acres); improving on water quality and providing an ecologically healthy connection between the upper reaches (Dutch Henry/Biter Creek, a known fishery) and Napa River: 1) Use bioengineering tech.: stabilize banks, reduce erosion, expand floodplain and enhance habitat at 107 sites, along 8,333 ft. of channel and 16,600 ft. of streambank. 2) Revegetate 24 acres on 117 sites with 350 trees, 2300 shrubs. 3) Collect scientific data. 4) Provide educational opportunities at sties. 5) Establish monitoring procedures to assess success of improvement measures and determine future activities. (TMDL under development)	Napa River Watershed	\$475,000
Implementation Projects on Livestock Facilities to Reduce Nutrient, Sediment & Pathogen Pollution	To achieve lasting reductions in nutrient, sediment and pathogen pollution to surface and ground waters through implementation of BMPs on livestock facilities in Santa Cruz, San Benito, South Santa Clara and Monterey Counties. This program will focus on TMDL listed waterbodies in high priority watersheds including the Pajaro, Watsonville Slough & San Lorenzo. We will actively recruit & train livestock owners on implementation of BMPs to accomplish regional priorities.	Various Central Coast Watersheds	\$999,900
<b>Total Match</b>			<b>\$7,362,040</b>

In addition to 319 funds, California has leveraged other funding opportunities to make large investments in NPS/Coastal NPS, Watershed Management, Integrated Regional Water Management, and Point Source Control (Figure 8). The Water Boards administer numerous grant and loan funding programs from bond measures for the purposes of improving water quality, water recycling, implementing watershed programs, and monitoring groundwater. The State is making a concerted effort to reduce the impacts of NPS pollution, improve water quality and water use efficiency, and maintain clean beaches through passage of recent bond measures that provide funding for these critical areas.

The Water Board uses a multi-faceted approach to ensure the success of the projects it funds. The approach includes a 1) clear understanding of what will be done and when, documented in an agreement, 2) management of the agreement/project during implementation, 3) post implementation water quality monitoring, 4) an effectiveness assessment, and finally 5) roll up of project results to higher level performance measures and indicators. All grant projects must include a plan that shows how the success of the project will be measured. Each project must include specific measures that tie to environmental effectiveness. The Water Board requires a final report upon project completion that summarizes the project and shows whether the purposes of the project were met. The report includes data collected to evaluate its effectiveness. For projects that include water quality monitoring, grantees must provide a monitoring and reporting plan.



**Figure 8: Grant Amounts and Funding Sources.**

## NEXT STEPS – LOOKING FORWARD

As the NPS program looks forward, we are continually looking for opportunities to improve the program and develop better opportunities for collaboration with our internal as well as external partners. With this in mind, there are numerous opportunities and projects that will help us meet our program goal to prevent or control NPS pollution such that none of the beneficial uses of water are impaired.

### *California NPS Program – 2008-13 Five Year Implementation Plan*

The NPS Program has formed a workgroup of Water Board and CCC representatives to develop the 2008-2013 NPS Five-Year Implementation Plan (NPS Implementation Plan). The purpose of this plan is to reaffirm the commitment by the NPS Program to the goal/objective of implementing all 61 MMs identified in the NPS Program Plan by 2013 with the ultimate goal of protecting and enhancing the beneficial uses of the waters of the State. The NPS Implementation Plan represents the last five year portion of the Fifteen-Year Strategy delineated in the NPS Program Plan and will lay out a specific set of goals, objectives and activities for the NPS Program over the next five years. Each activity will have specific measurable outcomes. The NPS Implementation Plan will call out targeted activities to achieve goals and objectives and will clarify outcomes (results, impacts, or consequences of actions) separate from specific activities. The Plan will provide focus and direction to program implementation, annual workplans and allocation of resources and will lay out performance measures for assessing successful implementation of the Plan.

### *The California Monitoring Council*

In 2006, legislation established the California Monitoring Council which will be administrated by the State Water Board. Some of the priorities the Council will address include:

developing an inventory of monitoring programs; improving coordination between agencies, reviewing the effects of existing monitoring programs and making recommendations for change; implementing a public information program; developing a monitoring program and identifying funding resources; and preparing an audit of programs. The legislation required the California Environmental Protection Agency and the California Resources Agency to enter into a Memorandum of Understanding (MOU) that is to be completed by December 2007.

### ***Tool Development***

SWAMP has started developing tools for bioassessment and physical habitat data to summarize and convert into usable information (e.g., metrics, IBI scores). The applications are planned to be available to State staff (and their contracts) through the SWAMP database and through web-based applications (via nodes) as appropriate. The tools will be used for interpreting biological data, entering physical habitat data into the SWAMP database, interpreting physical habitat data, and managing Quality Assurance/Quality Control data.

### ***California Monitoring And Assessment Program (CMAP)***

As CMAP begins its last year of sampling, efforts will be directed towards developing a coordinated and comprehensive statewide monitoring design, the Aquatic Use Assessment for Perennial Streams (ALU PS). This effort will be aimed at an expanded statewide perennial stream survey focusing on aquatic life and would integrate bioassessment efforts with SWAMP and the NPS Program. ALU PS will have a probabilistic design of 70 to 100 sites where BMI information will be collected. A key feature of the design would be to identify relationships between land-use stressors and response indicators such as the macrobenthic IBI or periphyton.

ALU PS is will include an integrator and indicator design. The Integrator design will assess trends at the bottom, or close to the bottom of large (HU) watersheds (100 sites). The Indicator design will assess trends, focusing on agriculture and urban land use, in small watersheds (20 sites in 20 watersheds - 10 urban and 10 agriculture). The agricultural sites will be sampled twice a year and urban once. Several indicators (parameters) are being considered including: sediment toxicity, sediment chemistry, and continuous temperature measurement. From the NPS Program perspective, the designs will provide needed information on NPS pollution (statewide scales down to small watershed scales).

